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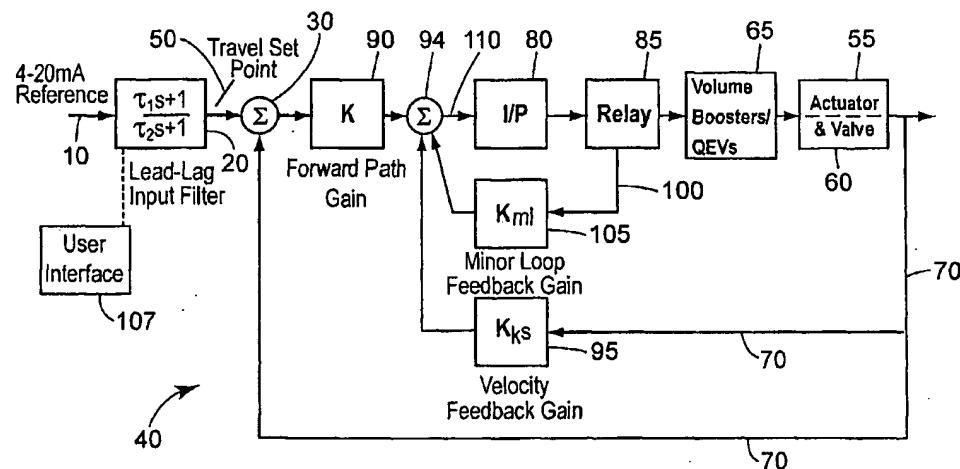
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(54) Title: LEAD-LAG INPUT FILTER ARRANGEMENT FOR ELECTRO-PNEUMATIC CONTROL LOOPS



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(57) Abstract: A control loop (40) such as an electro-pneumatic control loop or other logical process, having a leadlag filter (20) connected to the input thereof in particular, a reference control signal (10), such as a 4-20mA set point signal or control signal generated by a process controller or user interface, is applied to the input of the lead-lag input filter (20) which operates on the reference signal (which can be a set point or other control signal to provide a filtered output 50 (also called a travel set point signal) to a summer (30) associated with the electro-pneumatic control loop (40), the summer (30) compares the valve travel with the travel set point signal (50) to generate an error signal, which is provided to an amplifier or gain unit (90) (called a forward path gain unit) which applies a gain K. The output of the forward path gain unit 90 is provided to a further summer (94) which sums (in this case, subtracts) a velocity feedback gain developed by a gain unit (95) and a minor loop feedback gain developed by a gain unit (105) from the output of the forward path gain unit (90).

**INTERNATIONAL SEARCH REPORT**

International application No.

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**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: G05D 7/06( 2006.01)  
G01L 11/00( 2006.01)

USPC: 700/128,282;702/143,189

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 700/128, 282, 192; 702/143, 189, 190, 61, 85, 108; 70/416,117.3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,521,824 A (EAGAN et al.) 28 May 1996 (02.05.1996), Whole Document.	1-20, 34-37
Y	US 5,576,976 A (WHITE) 19 November 1996 (19.11.1996), Whole Document	1-20, 34-37
A	US 5,838,561 A (OWEN) 17 November 1998 (17.11.1998), Whole document.	1-42

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